

~~Claims~~

1 ~~Sub~~ A method for determining the position of a constant
2 frequency interval in a telecommunication signal, in
3 particular a frequency correction burst, said method
4 comprising the steps of:

- 5
- 6 a) receiving said telecommunication signal;
- 7
- 8 b) detecting an occurrence of said constant frequency
9 interval in said telecommunication signal;
- 10
- 11 c) obtaining a plurality of noise-reduced signal values
12 by a noise-reducing processing of at least a part of
13 said constant frequency interval in said
14 telecommunication signal;
- 15
- 16 d) using said noise-reduced signal values for adapting
17 a filter to the frequency of said constant frequency
18 interval;
- 19
- 20 e) using said adapted filter to filter said
21 telecommunication signal for generating filtered output
22 values; and
- 23
- 24 f) determining a predefined reference point of said
25 constant frequency interval on the basis of said
26 filtered output values.

1 2. The method of claim 1, wherein said predefined
2 reference point is one of the beginning and the end of said
3 constant frequency interval in said telecommunication
4 signal.

1 3. The method of claim 1, wherein said step f) comprises:
2 determining peak values of said filtered output values of
3 said adapted filter, and at least one of:

4

g) detecting an amplitude change of said peak values exceeding a predefined threshold, and

h) detecting a non-periodic time interval between said peak values.

4. The method of claims 1, wherein said filter is a FIR bandpass filter whose filter coefficients are at least some of said noise-reduced signal values.

5. The method of claim 4, wherein said filter coefficients of said filter are chosen to be a consecutive sequence of said noise-reduced signal values representing essentially an integral number of full cycles of said noise-reduced signal values.

6. The method of claims 1, wherein each noise-reduced signal value is an auto-correlation value or a cross-correlation value between a first and a second section of said telecommunication signal, said first and said second section being displaced by a varying displacement.

7. The method of claim 6, wherein said occurrence of said constant frequency interval in said telecommunication signal is detected on the basis of said noise-reduced signal values.

8. The method of claims 1, wherein said telecommunication signal is a wireless mobile telephony signal and preferably a GSM baseband signal.

9. An apparatus for determining the position of a constant frequency interval in a telecommunication signal, said apparatus comprising:

an analyzer for detecting an occurrence of said constant frequency interval in said telecommunication signal;

a noise-reducing filter unit for obtaining a plurality of noise-reduced signal values by a noise-reducing

11 processing of at least a part of said constant
12 frequency interval in said telecommunication signal;
13
14 a coefficient generator using said noise-reduced signal
15 values for adapting a filter to the frequency of said
16 constant frequency interval;
17
18 said filter filtering said telecommunication signal for
19 generating filtered output values; and
20
21 a position detector for determining a predefined
22 reference point of said constant frequency interval on
23 the basis of said filtered output values.

1 10. The apparatus of claim 9, wherein the apparatus is a
2 mobile telephone.

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